

M54



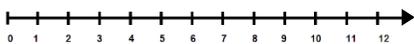
15-20 minutes



- ❖ 12 Matryoshkas (10 from M53 and 2 more here) and 12 Soldiers



- ❖ A soft toy to be the 'Stationmaster'
- ❖ A large sheet with a 1 to 12 Axis Line drawn on it



- ❖ 3 marker pens in different colours
- ❖ 5 blocks in the same as colours as 2 of your pens – 10 blocks in total (carriages)

## MATRYOSHKAS AND SOLDIERS



To reinforce the idea of an axis line as a graphic model to help you see relationships 'at a glance'  
To introduce a procedure for splitting a quantity into groups of a given size (e.g. groups of 3 or groups of 4)

To introduce a procedure for comparing the quantity of groups of one size, with the quantity of groups of another size

To promote understanding of the relationship between the size of a group and the number of groups we can make out of a given quantity – the bigger the group, the smaller the number of groups



Show the toy characters and explain: *These Matryoshkas and Soldiers are going on holiday. They are going by train – the Matryoshkas to the sea, and the Soldiers to the mountains. The Stationmaster (show your chosen toy) needs to know how many carriages to clean and get ready for the Matryoshkas and also how many for the Soldiers. He doesn't want to prepare more than he actually needs, or have the train pull more carriages than it needs to. Can we help? The thing is, there are 12 Matryoshkas and 12 Soldiers, but they have different shapes so this means that while a carriage can fit 4 Soldiers in it, it can only fit 3 Matryoshkas.*

Put out the axis line and ask your child to start by marking 12 Matryoshkas/Soldiers on it – if necessary, help them to mark one segment along the axis line for each Matryoshka/Soldier with a coloured line, until there are no more left.

**Note:** The graphic model your child is about to create contains a number of arcs. To help maintain visual clarity, do not ask them to draw arcs showing 12 Matryoshkas and 12 soldiers – instead explain that there are the same number of Soldiers as Matryoshkas, so once we have marked the number of Matryoshkas we have also marked the number of Soldiers. The same line shows us both. They can check this for themselves on the number line, if they want to, by marking one segment for each of the Matryoshkas or Soldiers, whichever they didn't count before, and confirming that they reach the same point on the number line.

Ask your child if they remember how many Matryoshkas can fit in one carriage, and agree that it was 3. Ask them to think about how they could put the Matryoshkas into groups of 3 using the number line.

**CONTINUED ON THE NEXT PAGE**



Your child can use arcs on an axis line to represent groups of 3 and 4.

Your child can work out how many carriages are required to transport 12 Matryoshkas (3 to a carriage), and Soldiers (4 to a carriage).

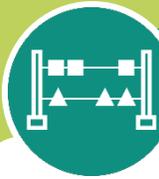
Your child can check their calculation by placing Matryoshkas and Soldiers next to the carriages (blocks).

Your child can say that a Matryoshka carriage has fewer passengers than a Soldier carriage, and vice versa.

Your child can say that the Matryoshkas need more carriages than the soldiers, and that the soldiers need fewer carriages than the Matryoshkas.



KEY TO LEARNING  
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## MATRYOSHKAS AND SOLDIERS – continued



If necessary, explain that they need to count the Matryoshkas in groups of 3 – and to do this, they should take a new colour, start on the left at 0 and make straight marks along the line over 3 segments, one for each of the Matryoshkas who will fit into a carriage. Then they need to draw an arc in the same colour from the point that they have reached to the start of the axis line (0). Explain: *This arc shows 1 carriage for 3 Matryoshkas, so we should mark it with an M or a Matryoshka symbol.*

Help them repeat this for the next 3 segments, and then the next 3, and then the last 3 segments, until all 12 Matryoshkas are grouped in a ‘carriage’. Point out that they can now count the number of groups of 3, placing one ‘carriage’ (a block the same colour as the ‘carriage arcs’) against every Matryoshka arc. They should end up with a ‘Matryoshka train’ consisting of 4 ‘carriages’ (blocks the same colour as the corresponding Matryoshka arcs).

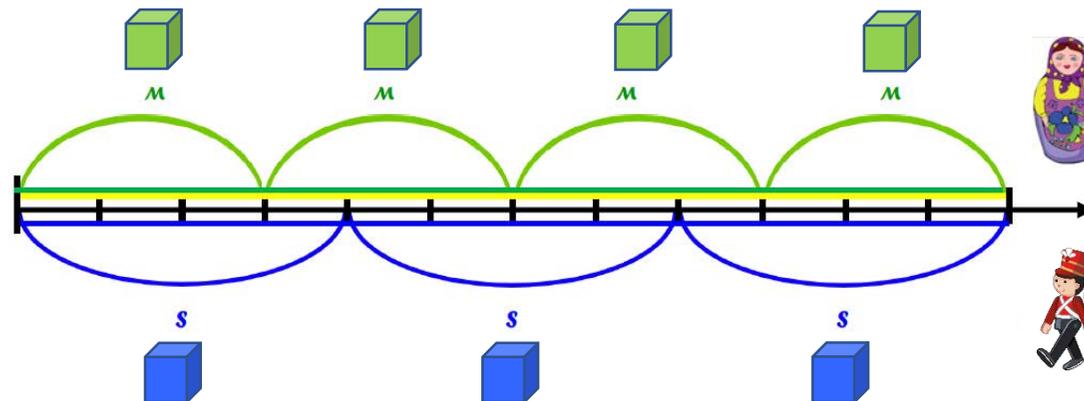
Repeat the whole process to find out how many ‘carriages’ the Soldiers need – allow your child to work as independently as possible. This time, the arcs should be in a different colour, showing groups of 4, marked with an S or a Soldier symbol and drawn under the axis line. They should end up with a ‘Soldier train’ consisting of 3 ‘carriages’ (blocks the same colour as the Soldier arcs).

### Let’s Check and Compare:

Ask your child to line up the carriages of the Matryoshka train and those of the Soldier train next to each other. Encourage them to lay out the 12 Matryoshkas across the 4 carriages, 3 to a carriage, and then repeat this for the 12 Soldiers across 3 carriages, 4 to a carriage.

Now compare the number of carriages for Matryoshkas and for Soldiers. Ask: *Which is more and which is fewer, the number of Matryoshkas in a carriage or the number of Soldiers? Which is more and which is fewer, the number of carriages in the Matryoshkas’ train or the number of carriages in the Soldiers’ train?*

Discuss and then summarise: *We started with 12 Matryoshkas and 12 Soldiers. There were more Soldiers than Matryoshkas in every carriage AND we did not need as many carriages for the Soldiers as we did for Matryoshkas. So the more people that can fit in a carriage, the smaller the number of carriages the Stationmaster needs to clean and get ready.* Finally, ask your child to talk to the Stationmaster and confirm how many carriages he needs to prepare for the Matryoshkas going on holiday to the sea (4), and how many carriages for the Soldiers going to the mountains (3). Have him/her thank your child profusely for their efforts.



Cut out each Soldier and Matryoshka separately.

